



**ATTORNEY-CLIENT WORK PRODUCT
PRIVILEGED AND CONFIDENTIAL**

June 12, 2009

Justin Massey
Miller, Axline & Sawyer
1050 Fulton Avenue, Suite 100
Sacramento, California 95825

Subject: Groundwater Sampling Description and Soil Boring Logs
Former Arnold Engineering Site, Fullerton California

Dear Mr. Massey:

In accordance with our Standard Agreement for Professional Services, Environmental Support Technologies (EST) is pleased to submit the enclosed soil boring logs for the five borings drilled for groundwater sample collection in relation to the former Arnold Engineering site. Attached is a site map showing the approximate locations of the soil borings. Boring FAE-GW1 was drilled at 1601 E. Orangthorpe Avenue (Ideal Spa Covers). Borings FAE-GW2, FAE-GW3, FAE-GW4 and FAE-GW4A were drilled at 1501-1521 E. Orangthorpe Avenue (Fullerton Business Center).

A brief description of groundwater sampling at each location is provided below:

FAE-GW1 – 1601 E. Orangethorpe Avenue

Drilling for groundwater sampling at location FAE-GW1 was performed on April 28, 2009 using hollow-stem auger drilling equipment supplied by Cascade Drilling, Inc. Consultants representing other interested parties were present for split groundwater samples. Soil samples were collected at five foot vertical intervals during drilling for logging purposes. Drilling was advanced from the surface to approximately 130 feet below the ground surface (bgs) where groundwater was encountered. Groundwater samples were collected using Hydropunch II™ sampling equipment and through the hollow-stem auger. The Hydropunch sampling equipment was cleaned before use by first steam-cleaning and then rinsing with distilled water. An equipment-blank water sample was provided to OCWD by pouring distilled water through the Hydropunch II sampler after the first cleaning event. The Hydropunch II sampler was driven ahead of the auger to a depth of approximately 140 feet bgs for water sample collection. Sufficient water was produced by the Hydropunch equipment for most of the OCWD water sample needs. However, three drives of the Hydropunch equipment failed to produce a sufficient amount of water for all samples necessary. Therefore, groundwater samples were collected through the hollow-stem auger using a new disposable bailer and nylon line and supplied to OCWD and other consultants. The boring was sealed with hydrated bentonite grout and paved with concrete after completion of sampling.



F AE-GW2 – 1501-1521 E. Orangethorpe Avenue

Drilling for groundwater sampling at location FAE-GW2 was performed on May 6, 2009 using hollow-stem auger drilling equipment supplied by Cascade Drilling, Inc. Soil samples were collected at five foot vertical intervals during drilling for logging purposes. Drilling was advanced from the surface to approximately 130 feet below the ground surface (bgs) where groundwater was encountered. Groundwater samples were collected using Hydropunch II™ groundwater sampling equipment. The Hydropunch sampling equipment was cleaned by first steam-cleaning and then rinsing with distilled water before use. An equipment-blank water sample was provided to OCWD by pouring distilled water through the Hydropunch II sampler after the first cleaning event. The Hydropunch II sampler was driven ahead of the auger to a depth of approximately 145 feet bgs for water sample collection. Four drives of the Hydropunch equipment produced sufficient water for all of the OCWD water sample needs. The boring was sealed with hydrated bentonite grout and paved with concrete after completion of sampling.

F AE-GW3 – 1501-1521 E. Orangethorpe Avenue

Drilling for groundwater sampling at location FAE-GW1 was performed on May 7, 2009 using hollow-stem auger drilling equipment supplied by Cascade Drilling, Inc. Soil samples were collected at five foot vertical intervals during drilling for logging purposes. Drilling was advanced from the surface to approximately 130 feet below the ground surface (bgs) where groundwater was encountered. Groundwater samples were collected using a Hydropunch II™ and through the hollow-stem auger. The Hydropunch sampling equipment was cleaned by first steam-cleaning and then rinsing with distilled water before use. An equipment-blank water sample was provided to OCWD by pouring distilled water through the Hydropunch II sampler after the first cleaning event. The Hydropunch II sampler was driven ahead of the auger to a depth of approximately 140 feet bgs for water sample collection. Sufficient water was produced by the Hydropunch equipment for most of the OCWD water sample needs. However, four drives of the Hydropunch equipment failed to produce a sufficient amount of water for all duplicate samples required by OCWD. Therefore, groundwater samples were collected through the hollow-stem auger using a new disposable bailer and nylon line and supplied to OCWD personnel. The boring was sealed with hydrated bentonite grout and paved with concrete after completion of sampling.

F AE-GW4 – 1501-1521 E. Orangethorpe Avenue

Drilling for groundwater sampling at location FAE-GW4 was performed on May 8 2009 using hollow-stem auger drilling equipment supplied by Cascade Drilling, Inc. Soil samples were collected at five foot vertical intervals during drilling for logging purposes. Drilling was advanced from the surface to approximately 65 feet below the ground surface (bgs) where “perched” groundwater was encountered in an approximate 5 foot layer of sand that is underlain by stiff clay at approximately 64 feet bgs. Hollow-stem auger drilling was discontinued at this point and groundwater samples were collected by installation of a temporary PVC well. The well was constructed using 5 feet of new 2-inch diameter PVC well screen with 0.010 inch slots from approximately 61 feet to 66 feet bgs and new 2-inch PVC blank casing from the top of the



screen to the surface. The annular space around the screen was packed with #2/16 silica well sand. The total depth of the temporary well was approximately 66 feet. The depth to water in the temporary well was measured at approximately 62.4 feet bgs. Approximately 1.5 gallons of groundwater were bailed from the well before groundwater sample collection. Groundwater samples were collected using a new disposable bailer and nylon line and supplied to OCWD personnel. The well casing was removed from and the boring was sealed with hydrated bentonite grout and paved with concrete after completion of sampling.

F AE-GW4A – 1501-1521 E. Orangethorpe Avenue

Drilling for groundwater sampling at location FAE-GW4A was performed on May 20 and 21, 2009 using sonic drilling equipment supplied by Cascade Drilling, Inc. This boring was located approximately 8 feet north of FAE-GW4. This boring was advanced to collect deeper water located near 130 feet bgs. Continuous soil samples were collected using the sonic drill pipe for logging purposes. Eight-inch diameter sonic drill pipe was advanced to a depth to approximately 70 feet bgs. Approximately five feet of bentonite pellets were placed in the drill pipe from approximately 65 to 70 feet bgs. A 6-inch diameter sonic drill pipe was advanced through the 8-inch pipe to approximately 110 feet bgs. A 4 inch diameter sonic pipe was advanced through the 6-inch pipe to approximately 130 feet bgs where water-saturated sand was encountered. Attempts were made to collect water samples using Hydropunch II sampling equipment and a temporary 2-inch PVC well. These methods failed to produce water. Groundwater samples were collected using standard Hydropunch equipment which consisted of a Hydropunch sampler and new one-inch diameter PVC well screen. The Hydropunch sampler was driven ahead of the auger to a depth of approximately 145 feet bgs for water sample collection between approximately 140 and 145 feet bgs. Groundwater samples were collected using a stainless steel bailer and new nylon line and supplied to OCWD personnel. The Hydropunch sampling equipment and stainless steel bailer were cleaned by first steam-cleaning and then rinsing with distilled water before use. An equipment-blank water sample was provided to OCWD by pouring distilled water through the Hydropunch sampler after the first cleaning event. The boring was sealed with hydrated bentonite grout and paved with concrete after completion of sampling.

Should you have any questions or comments please contact me at (949) 679-9500.

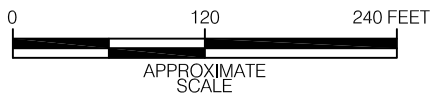
Sincerely,

Environmental Support Technologies



Michael Mareello, PG, CHG, REA I
Project Manager/Senior Hydrogeologist

cc: David Mark/OCWD
EST Project File 2736



EXPLANATION

TW-2  GROUND WATER SAMPLING LOCATION

FIGURE 1
GROUNDWATER SAMPLING POINTS
1503-1521 AND 1601 EAST ORANGETHORPE AVENUE
FULLERTON, CALIFORNIA

EST 2736
GW SAMPLING

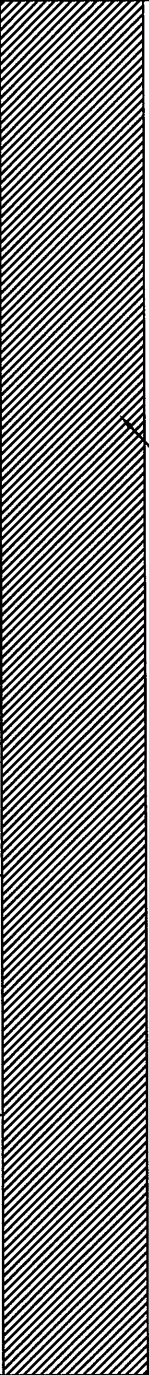
DRAWN BY: CM

SCALE: AS SHOWN

DATE: 05/25/09

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW1			
Project Name: MAS/OCWD				Project Location: 1601 East Orangethorpe Avenue, Fullerton, California						Project No. 2736			
Driller: Cascade				Type of Rig: CME-85				Type/Size of Auger: 8-Inch O.D. HS					
Logged By: M. Marelo, PG, 5339				Date Drilled: 04/28/2009				Checked By:		1 of 6			
WATER AND WELL DATA						Total Depth of Well Completed: NA							
Depth of Water First Encountered: ≈ 130 Feet						Screen Type, Dia., Interval: Hydropunch 2							
Static Depth of Water in Well: NA						Slot Size and Filter Pack: NA							
Total Depth of Boring: ≈ 140 Feet						Type/Size of Soil Sampler: 2-Inch I.D. x 18-Inch Split Barrel							
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC		Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation						
							And (40-50%)	With (25-40%)	Some (10-25%)				Trace (0-10%)
0						0	Asphalt Surface ≈ 4 In.					Concrete	
							Hand auger to 5 Feet						
5	4 7/15/14	08:40		NA		5	Fine sand (SP), light olive-brown, (2.5Y, 5/4), dry, no odor						
10	9 11/13	08:45				10	Fine sand (SP), light olive-brown, (2.5Y, 5/4), dry, no odor						
15	12 12/14	08:50				15	Well graded sand (SW) olive-brown, (2.5Y, 4/3), dry, no odor					Boring Backfilled with Bentonite Grout	
20	11 12/14	08:55				20	Silt, some clay, trace sand (ML), very dark grayish-brown (2.5Y, 3/2), slightly moist to moist, no odor TM						

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW1		
Project Name: MAS/OCWD					Project Location: 1601 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-85			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Mareello, PG, 5339					Date Drilled: 04/28/2009			Checked By:		2 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
25	13 16	16	09:01			25	Silt, trace sand (ML), dark grayish-brown (2.5Y, 4/2), dry, no odor					Boring Backfilled with Bentonite Grout
30	10 16	17	09:07			30	Silt, some clay, trace sand (ML), olive-brown (2.5Y, 4/3), slightly moist, no odor					
35	10 12	15	09:25			35	Silt, some clay, trace sand (ML), olive-brown (2.5Y, 4/3), slightly moist, no odor					
40	14 16	19	09:20			40	Silt with clay (ML), olive-brown (2.5Y, 4/3), moist, no odor					
45	13 15	18	09:30			45	Clay, some silt, trace sand (CL), olive (5Y, 4/3), moist, no odor, stiff					
50	15 17	17	09:37			50	Fine to medium sand (SP), light olive-brown (2.5Y, 5/3), slightly moist to dry, no odor					

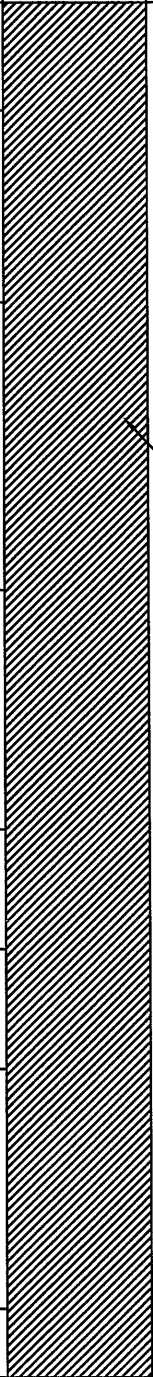
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW1		
Project Name: MAS/OCWD					Project Location: 1601 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-85			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 04/28/2009			Checked By:		3 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation						
						And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)			
55		x x x	00:00			55						
60		10 12 16	09:52			60						
				NA								
65		9 11 13	09:59			65						
70		12 14 17	10:06			70						
75		16 19 21	10:15			75						
80		12 16 17	10:33			80						

Boring Backfilled with Bentonite Grout

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW1		
Project Name: MAS/OCWD					Project Location: 1601 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-85			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Mareello, PG, 5339					Date Drilled: 04/28/2009			Checked By:		4 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
85	14 15 19	10:43		NA		85	Clay and silt, trace sand (CL-ML), olive-brown (2.5Y, 4/4), moist, no odor					Boring Backfilled with Bentonite Grout
90	15 19 23	10:52			90	Silt, trace clay and sand (ML), very dark grayish-brown (10YR, 3/2), slightly moist, no odor						
95	19 20 23	11:04			95	Silt and fine to medium sand (ML-SM), brown (10YR, 4/3), dry to slightly moist, no odor						
100	11 14 17	11:09			100	Fine to medium sand, some silt (SP), olive-brown (2.5Y, 4/3), moist, no odor						
						Clay (CL), dark olive-brown (2.5Y, 3/3), moist, stiff, no odor						
105	15 17 21	11:23			105	Clay, some silt (CL), olive-brown (2.5Y, 4/3), moist, no odor						
							Clay with silt (CL-ML), olive-brown (2.5Y, 4/3), moist, no odor					

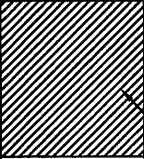
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW1		
Project Name: MAS/OCWD					Project Location: 1601 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-85			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 04/28/2009			Checked By:		5 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
110	110 11 13		11:33			110	Clay with silt (CL-ML), olive-brown (2.5Y, 4/3), moist, no odor					Boring Backfilled with Bentonite Grout
115	115 50 X X		11:38			115	Fine sand and silt (SP-SM), olive brown (2.5Y, 4/3), slightly moist, hard, no odor					
120	120 23 50 X		11:53	NA		120	Well graded sand, trace gravel (SW), light olive-brown (2.5Y, 5/3), dry, hard, no odor					
125	125 28 50 X		12:08			125	Well graded sand, some gravel (SW), light olive-brown (2.5Y, 5/3), slightly moist, hard, no odor					
130	130 28 50 X		12:17			130	Fine to medium sand, some silt and clay (SM), olive-brown (2.5Y, 4/4), water saturated, no odor					
135						135						

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW1		
Project Name: MAS/OCWD					Project Location: 1601 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-85			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 04/28/2009			Checked By:		6 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
140						140	Groundwater sample collected at approximately 140 feet by Hydropunch 2 and through auger					Boring Backfilled with Bentonite Grout
							EOH 140 Feet					
						145						
						150						
						155						
						160						
						165						

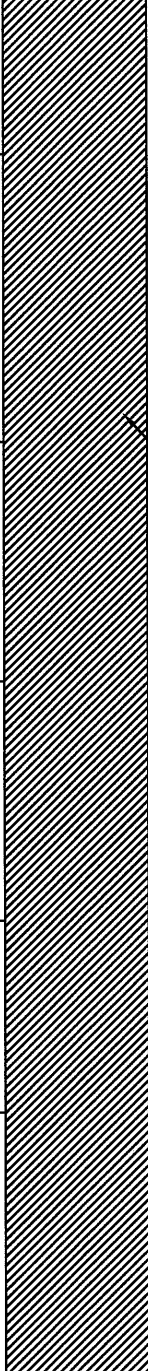
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW2	
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736	
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS			
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/06/2009			Checked By:		1 of 6	
WATER AND WELL DATA						Total Depth of Well Completed: NA					
Depth of Water First Encountered: ≈ 120 Feet						Screen Type, Dia., Interval: Hydropunch 2					
Static Depth of Water in Well: NA						Slot Size and Filter Pack: NA					
Total Depth of Boring: ≈ 140 Feet						Type/Size of Soil Sampler: 2-Inch I.D. x 18-Inch Split Barrel					
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation				Description
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)	
0						0	Asphalt Surface ≈ 4 In.				Concrete
							Air-Knife to approximately 7 Feet				
5				NA		5	Fine sand and silt (SM-ML), dark grayish-brown, (2.5Y, 4/2), moist, no odor (hand auger 05/05/2009)				Bentonite Chip Seal
10	07:56	5		0		10	Silt with fine sand, trace clay (ML), dark grayish-brown, (2.5Y, 4/2), moist, no odor				
15	08:00	5		0.1		15	Clay, some silt, trace sand (CL) olive-brown, (2.5Y, 4/3), slightly moist to moist, no odor				
20	08:03	10		0		20	Silt, some fine sand (ML), dark grayish-brown (2.5Y, 4/2), slightly moist, no odor				Boring Backfilled with Bentonite Grout
		11									

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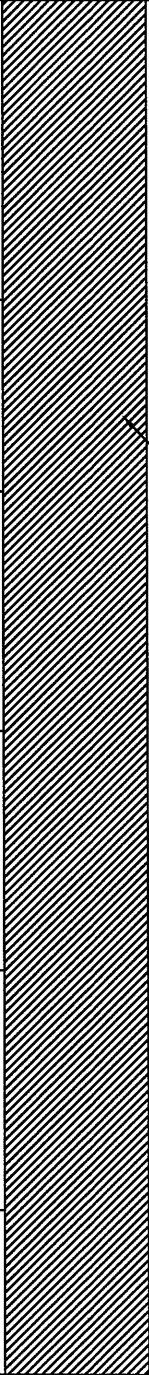
SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW2		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marello, PG, 5339					Date Drilled: 05/06/2009			Checked By:		2 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
25	11 15 20		08:18	0.1		25	Silt, some fine sand (ML), dark grayish-brown (2.5Y, 4/2), slightly moist, no odor					
30	10 10 12		08:25	0.2		30	Clay with silt, some sand (CL), olive-brown (2.5Y, 4/3), moist, no odor					
35	9 10 10		08:29	0.2		35	Silt, trace clay and sand (ML), dark grayish-brown (2.5Y, 4/2), slightly moist, no odor					
40	8 10 14		08:32	0.3		40	Silt, trace clay and sand (ML), dark grayish-brown (2.5Y, 4/2), moist, no odor					
45	10 12 17		08:36	0.3		45	Silt and very fine sand (ML-SM), olive-brown (2.5Y, 4/3), dry, no odor					
50	8 10 16		08:40	0.2		50	Fine to medium sand (SP), olive-brown (2.5Y, 4/3), dry, no odor					

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW2	
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736	
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS			
Logged By: M. Marelllo, PG, 5339					Date Drilled: 05/06/2009			Checked By:		3 of 6	
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
						And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
55	11 17 23	08:44	0.4			Fine to medium sand (SP-SW), some coarse sand, light olive-brown (2.5Y, 5/3), dry, no odor				Boring Backfilled with Bentonite Grout	
60	8 11 11	08:47	0.3			Clay, trace silt and sand (CL), dark olive-brown (2.5Y, 3/3), moist, stiff, no odor					
65	8 11 12	08:51	0.1			Clay, trace silt (CL), dark olive-brown (2.5Y, 3/3), moist, stiff, no odor					
70	10 14 18	09:06	0.4			Clay and silt (CL-ML), olive-brown (2.5Y, 4/3), moist, no odor, stiff					
75	36 50 x	09:15	0.2			Clay and silt, some sand (CL-ML), dark olive-brown (2.5Y, 3/3), slightly moist, no odor, very stiff					
80	21 23 24	09:21	0.3			Silt, some clay, trace fine sand (ML), dark brown (10Y, 3/3), slightly moist to moist, very stiff					

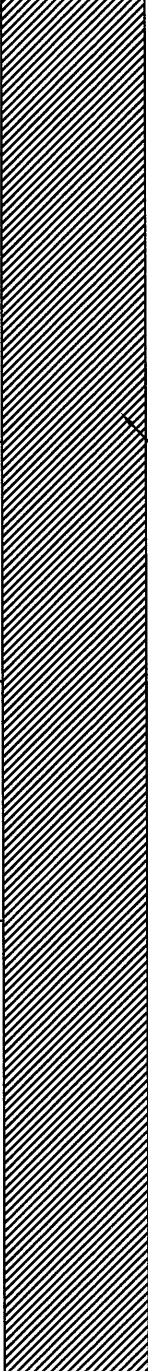
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW2		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/06/2009			Checked By:		4 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
85		5 19 25	09:28	0.3		85	Clay, some silt, trace sand (CL), brown (10Y, 4/3), moist, no odor, stiff					Boring Backfilled with Bentonite Grout
90		10 14 18	09:39	0.3		90	Silt, trace clay and fine sand (ML), brown (10YR, 4/3), slightly moist, no odor, stiff					
95		17 24 30	09:47	0.4		95	Clay, trace silt and fine sand (CL), olive-brown (2.5YR, 4/3), moist, very stiff, no odor					
100		12 14 16	09:52	0.5		100	Clay, some silt, trace sand (CL), olive-brown (2.5Y, 4/3), moist, no odor, stiff					
105		17 12 18	09:56	0.6		105	Well graded sand, some silt (SW-SM), dark olive-brown (2.5Y, 3/3), dry to slightly moist, no odor					
							Fine to medium sand, trace coarse sand (SP), light olive-brown (2.5Y, 5/3), dry to slightly moist, no odor					

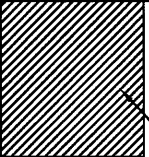
Environmental Support Technologies

\\Estserver\projects\EST2700 To EST2799\EST2736\FIGURES\Groundwater Investigation\Boring Log FAE-GW2 2009-04-28 - 05/27/2009

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW2		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelllo, PG, 5339					Date Drilled: 05/06/2009			Checked By:		5 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
110	15/20/25		10:01	0.6		110	Fine to medium sand, trace coarse sand (SP), light olive-brown (2.5Y, 5/3), dry to slightly moist, no odor					Boring Backfilled with Bentonite Grout
115	50/x/x		11:38	0.7		115	Well graded sand (SW), light olive-brown (2.5Y, 5/3), slightly moist, no odor					
120	23/50/x		11:53	0.9		120	Well graded sand and gravel (SW-GW), olive-brown (2.5Y, 4/3), slightly moist, hard, no odor					
125	28/50/x		12:08	0.9		125	Fine to medium sand, trace coarse sand (SP), light olive-brown (2.5Y, 5/3), dry to slightly moist, no odor					
130	28/50/x		12:17	0.8		130	Fine to medium sand, with silt (SM), dark grayish-brown (2.5Y, 4/2), water saturated, no odor					
135						135						

Environmental Support Technologies

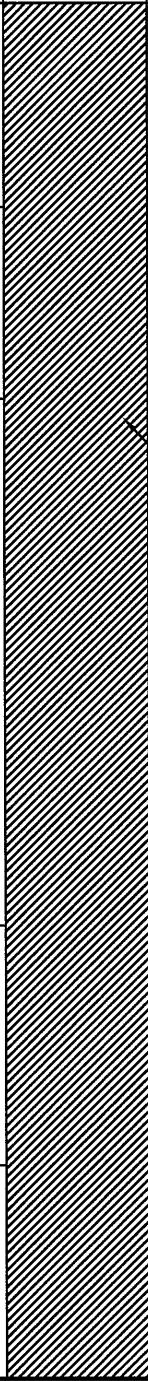
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW2		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/06/2009			Checked By:		6 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
140						140	Groundwater sample collected at approximately 140 feet by Hydropunch 2 and through auger					Boring Backfilled with Bentonite Grout
						145	EOH 140 Feet					
						150						
						155						
						160						
						165						

Environmental Support Technologies

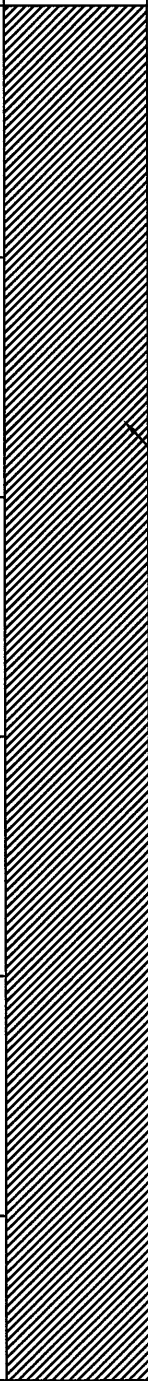
SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG							Boring No. FAE-GW3	
Project Name: MAS/OCWD			Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California				Project No. 2736	
Driller: Cascade			Type of Rig: CME-95		Type/Size of Auger: 8-Inch O.D. HS			
Logged By: M. Mareello, PG, 5339			Date Drilled: 05/07/2009		Checked By:		1 of 6	
WATER AND WELL DATA					Total Depth of Well Completed: NA			
Depth of Water First Encountered: ≈ 130 Feet					Screen Type, Dia., Interval: Hydropunch 2			
Static Depth of Water in Well: NA					Slot Size and Filter Pack: NA			
Total Depth of Boring: ≈ 140 Feet					Type/Size of Soil Sampler: 2-Inch I.D. x 18-Inch Split Barrel			
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY		
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation	WELL/BORING GRAPHIC
							And (40-50%) With (25-40%) Some (10-25%) Trace (0-10%)	
0						0	Asphalt Surface ≈ 4 in.	
							Air Knife to 8 Feet	
5						5	Silt, some fine sand (ML), dark olive-brown, (2.5Y, 3/3), dry, no odor (Hand auger on 05/06/2009)	
10	6 7 12		07:57	0.8		10	Clay, some silt, trace sand (CL), olive-brown, (2.5Y, 4/3), moist, no odor	
15	6 10 11		08:01	0.9		15	Silt, some clay, trace sand (ML) olive-brown, (2.5Y, 4/3), moist, no odor	
20	6 10 10		08:04	0.9		20	Clay and silt, trace sand (CL-ML), dark olive-brown (2.5Y, 3/3), slightly moist, no odor	
Environmental Support Technologies								

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW3		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marello, PG, 5339					Date Drilled: 05/07/2009			Checked By:		2 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
25		10/10	08:08	0.8		25	Fine to medium sand with silt (SM), dark grayish-brown (2.5Y, 4/2), dry to slightly moist, no odor					
30		8 12/14	08:12	0.3		30	Clay (CL), olive-brown (2.5Y, 4/3), moist, no odor					
35		11 15/20	08:18	0.5		35	Fine to medium sand (SP), light olive-brown (2.5Y, 5/4), dry, no odor					
40		11 15/18	08:23	1.1		40	Fine to medium sand, trace coarse sand (SP), light olive-brown (2.5Y, 5/4), dry, no odor					
45		14 17/20	08:26	0.6		45	Well graded sand, some silt (SW-SM), dark grayish-brown (2.5Y, 4/2), dry, no odor					
50		11 17/20	08:30	0.7		50	Fine to medium sand (SP), light olive-brown (2.5Y, 4/2), dry, no odor					

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW3		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelllo, PG, 5339					Date Drilled: 05/07/2009			Checked By:		3 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
55	10 10 11		08:34	0.2		55	Clay, some silt (CL), olive -brown (2.5Y, 4/3), moist, no odor, stiff					
60	14 17 22		08:38	0.4		60	Fine to medium sand (SP), light olive-brown (2.5Y, 5/4), dry, no odor					
65	12 16 19		08:43	0.9		65	Clay with silt, some sand (CL-SC), brown (10YR, 4/3), moist, no odor					
70	7 10 15		08:48	0.5		70	Clay, trace silt and fine sand (CL), olive-brown (2.5Y, 4/3), moist, no odor, stiff					
75	4 7 9		08:53	0.9		75	Clay, trace silt and fine sand (CL), dark olive-brown (2.5Y, 3/3), moist, no odor, stiff					
80	7 10 14		08:58	0.8		80	Clay, some silt and sand (CL), dark brown (10YR, 3/3), moist, no odor, stiff					

Environmental Support Technologies

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW3		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelllo, PG, 5339					Date Drilled: 05/07/2009			Checked By:		4 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
85	12/15/17		09:06	0.9		85	Clay, some silt and sand (CL), dark brown (10YR, 3/3), moist, no odor, stiff				Boring Backfilled with Bentonite Grout	
90	12/10/12		09:12	0.8		90	Clay, trace silt (CL), brown (10YR, 4/3), moist, no odor, stiff					
95	10/11/14		09:17	0.3		95	Clay, trace silt and fine sand (CL), brown (10YR, 4/3), moist, no odor, stiff					
100	12/14/21		09:23	07		100	Clay, some silt, trace sand (CL), olive-brown (2.5Y, 4/3), moist, no odor, stiff					
105	7/10		09:30			105	Silt, some clay (ML), brown (10YR, 3/3), moist, no odor					
							Clay, trace silt and sand (CL), olive-brown (2.5Y, 4/3), moist, no odor, stiff					
							Well graded sand with gravel, some silt, trace clay (SW-SM), dark olive-brown (2.5Y, 3/3), moist, no odor					

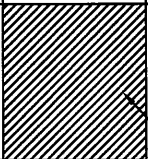
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW3		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/07/2009			Checked By:		5 of 6		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC Description		
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
110	12 15 18		09:36	1.2		110	Well graded sand with gravel, some silt, trace clay (SW-SM), dark olive-brown (2.5Y, 3/3), moist, no odor				 Boring Backfilled with Bentonite Grout	
115	12 15 18		09:45	0.6		115	Well graded sand, trace silt and clay (SW), dark greyish-brown (10YR, 4/2), moist, hard, no odor					
120	30 50 X		09:54	0.6		120	Well graded sand and gravel (SW-GW), dark grayish-brown (2.5Y, 4/2), moist, no odor, very hard					
125	50-2 X X		10:02			125	No sample recovery at 125 feet					
130	30 50 X		10:20	0.7		130	Well graded sand, little to no fines (SW), grayish-brown (2.5Y, 5/2), water saturated, no odor					
135						135						

Environmental Support Technologies

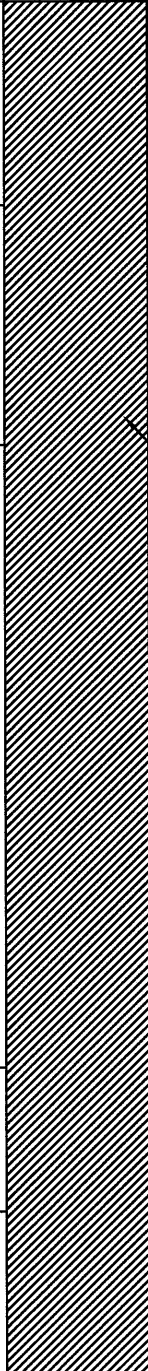
\\Estserver\projects\EST2700 To EST2799\EST2736\FIGURES\Groundwater Investigation\Boring Log FAE-GW3 2009-06-07 - 05/22/2009

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW3		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/07/2009			Checked By:		6 of 6		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
140						140	Groundwater sample collected at approximately 140 feet by Hydropunch 2 EOH 140 Feet					Boring Backfilled with Bentonite Grout
						145						
						150						
						155						
						160						
						165						

Environmental Support Technologies

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW4	
Project Name: MAS/OCWD				Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California						Project No. 2736	
Driller: Cascade				Type of Rig: CME-95				Type/Size of Auger: 8-Inch O.D. HS			
Logged By: M. Marelo, PG, 5339				Date Drilled: 05/08/2009				Checked By:		1 of 3	
WATER AND WELL DATA						Total Depth of Well Completed: 66 Feet (Temporary)					
Depth of Water First Encountered: ≈ 63 Feet						Screen Type, Dia., Interval: 2-Inch Sch 40 PVC 61 to 66 Feet					
Static Depth of Water in Well: 62.4 Feet BGS						Slot Size and Filter Pack: 0.010-Inch, #2/16 Silica Sand					
Total Depth of Boring: 66 Feet						Type/Size of Soil Sampler: 2-Inch I.D. x 18-Inch Split Barrel					
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation				Description
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)	
0						0	Asphalt Surface ≈ 4 In.				Concrete
							Air-Knife to 8 Feet				
5				NA		5	Silt, some fine sand (ML), dark grayish-brown, (2.5Y, 4/2), dry, no odor (hand auger 05/06/2009)				Bentonite Chip Seal
10	4 10 7		07:58	0		10	Clay, some silt (CL), olive-brown, (2.5Y, 4/3), moist, soft, no odor				
15	9 15 9		08:02	0.6		15	Clay and silt (CL-ML) dark grayish-brown, (2.5Y, 4/2), slightly moist, no odor				
20	10 20 10		08:05	0.5		20	Clay, some silt, (CL), olive-brown (2.5Y, 4/3), moist, soft, no odor				Boring Backfilled with Bentonite Grout

Environmental Support Technologies

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW4		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marello, PG, 5339					Date Drilled: 05/08/2009			Checked By:		2 of 3		
Depth in Feet	SOIL/ROCK SAMPLE DATA					Depth in Feet	DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description
	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log		Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)		
25	9 14 17		08:09	0.7		25	Silt, some fine sand (ML), dark grayish-brown (2.5Y, 4/2), slightly moist, no odor					Boring Backfilled with Bentonite Grout
30	10 15		08:13	0.8		30	Clay (CL), olive-brown (2.5Y, 4/3), moist, soft, no odor					
35	9 17 19		08:17	0.6		35	Fine to medium sand (SP), light olive-brown (2.5Y, 5/3), dry, no odor					
40	11 17 20		08:20	0.4		40	Fine to medium sand (SP), light olive-brown (2.5Y, 5/3), dry, no odor					
45	10 10 12		08:24	0.6		45	Clay with silt (CL), olive-brown (2.5Y, 4/3), moist, no odor					
50	12 16 18		08:28	1.0		50	Fine to medium sand (SP), grayish-brown (2.5Y, 5/2), dry, no odor					
Environmental Support Technologies												

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW4		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: CME-95			Type/Size of Auger: 8-Inch O.D. HS				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/08/2009			Checked By:		3 of 3		
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
55		10 10 15	08:31	0.6		55	Fine to medium sand (SP), grayish-brown (2.5Y, 5/2), dry, no odor					Boring Backfilled with Bentonite Grout
							Clay with silt, some sand (CL), olive-brown (2.5Y, 4/3), moist, no odor					
60		19 21 26	08:36	0.5		60	Fine to medium sand, trace coarse sand (SP), light olive-brown (2.5Y, 5/3), moist, no odor					
							Water saturated at 63 feet					
65		7 10 13	08:40	1.1		65	Clay, some silt, trace fine sand (CL), dark olive-brown (2.5, 3/3), moist					
						EOH Approx 66 Feet						
						Groundwater encountered at approximately 63 feet BGS. Groundwater samples collected from a temporary well						
70						70						
75						75						
80						80						

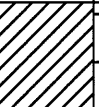
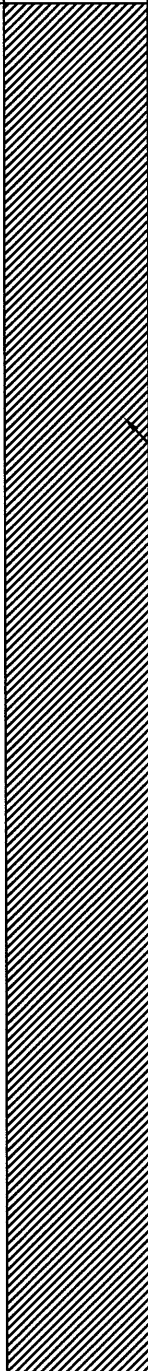
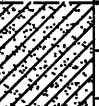

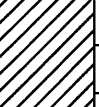

Environmental Support Technologies

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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW4A	
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736	
Driller: Cascade					Type of Rig: Sonic Drill			Type/Size of Auger: 8-Inch, 6-Inch, 4-Inch Sonic Pipe			
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/20/2009 - 05/21/2009			Checked By:		1 of 4	
WATER AND WELL DATA							Total Depth of Well Completed: NA				
Depth of Water First Encountered: ≈ 130 Feet							Screen Type, Dia., Interval: Hydropunch				
Static Depth of Water in Well: NA							Slot Size and Filter Pack: NA				
Total Depth of Boring: ≈ 145 Feet							Type/Size of Soil Sampler: Sonic Core				
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation				Description
							And (40-50%)	With (25-40%)	Some (10-25%)	Trace (0-10%)	
0						0	Boring not logged 0-65 feet (See Boring Log FAE-GW4)				Concrete
65			12:45	NA		65	65 - 66 Feet:	Well graded sand (SW) light olive-brown (2.5Y, 5/3)			Bentonite Chip Seal
							66 - 73 Feet:	Clay, trace silt (CL), olive-brown (2.5Y, 4/3), water saturated top 6 inches, moist below this interval, stiff			Boring Backfilled with Bentonite Grout
70						70	73 - 77 Feet:	Clay with sand, some silt (CL-SC), olive brown (2.5Y, 4/3), moist to very moist, no odor			
75			14:40	NA		75	77 - 79 Feet:	Clay with silt, some fine sand, trace fine gravel (CL), dark olive-brown (2.5Y, 3/3), moist, no odor			
							79 - 80 Feet:	Fine sand and silt, some clay (SM), olive-brown (2.5Y, 4/3), moist, no odor			
80			08:58	0.8		80	80 - 83 Feet:	Clay (CL), dark olive-brown (2.5Y, 3/3), moist, stiff, no odor			

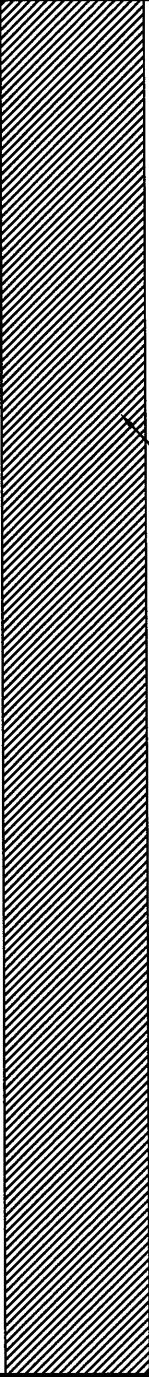
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SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG							Boring No. FAE-GW4A						
Project Name: MAS/OCWD				Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California				Project No. 2736					
Driller: Cascade				Type of Rig: Sonic Drill		Type/Size of Auger: 8-Inch, 6-Inch, 4-Inch Sonic Pipe							
Logged By: M. Marelo, PG, 5339				Date Drilled: 05/20/2009 - 05/21/2009		Checked By:		2 of 4					
SOIL/ROCK SAMPLE DATA					DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description			
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation						
							And (40-50%)	With (25-40%)			Some (10-25%)	Trace (0-10%)	
85	NO RECOVERY		15:05	NA		85	80 - 83 Feet:	Clay (CL), dark olive-brown (2.5Y, 3/3), moist, stiff, no odor					Boring Backfilled with Bentonite Grout
							83 - 85 Feet:	Silt with fine sand, trace clay (ML-SM), olive-brown (2.5Y, 4/3), moist, no odor					
							No Sample Recovery 85 to 90 ft.						
90			15:34	NA		90	90 - 93 Feet:	Clay and sand, some silt (SC), dark olive-brown (2.5Y, 3/3), moist to very moist, no odor					
							93 - 94 Feet:	Fine sand, some silt (SP-SM), olive-brown (2.5Y, 4/3), dry, no odor					
95			15:50	NA		95	94 - 97 Feet:	Silt, some clay, trace fine sand (ML), olive-brown to dark olive-brown (2.5Y, 3.5/3), slightly moist to moist, no odor					
							97 - 100 Feet:	Silt, trace fine sand, (ML), olive-brown (2.5, 4/3), slightly moist to moist, no odor					
100						100	100 - 103 Feet:	Clay, some silt (CL), dark olive-brown (2.5Y, 3/3), moist, no odor					
							103 - 105 Feet:	Silt with fine sand (ML-SM), light olive-brown (2.5Y, 5/3), slightly moist to dry, no odor					
105	NO RECOVERY		16:17	NA		105	105 - 107 Feet:	Fine to medium sand with silt (SM), light greyish-brown (2.5Y, 5/2), dry, no odor					

Environmental Support Technologies

\\Estserver\projects\EST12700 To EST12799\EST12736\FIGURES\Groundwater Investigation\Boring Log FAE-GW4A 2009-05-20 - 06/02/2009

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW4A		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: Sonic Drill			Type/Size of Auger: 8-Inch, 6-Inch, 4-Inch Sonic Pipe				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/20/2009 - 05/21/2009			Checked By:				
									3 of 4			
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
110						110	110 - 116 Feet: Clay, trace silt (CL), olive-brown (2.5Y, 4/3), moist, stiff, no odor					
115			07:45	NA		115	116 - 130 Feet: Well graded and gravel, some silt (SW-GW), gravel to 8 cm diameter, light brownish-grey (2.5Y, 5/2), dry, no odor					
120			08:07	NA		120						
125						125						
130						130	130 - 135 Feet: Well graded sand and gravel, some silt (SW-GW), olive-brown (2.5Y, 4/3), water saturated, no odor					
135			08:34	NA		135	135 - 136 Feet: Fine sand, some silt (SP-SM), olive-brown (2.5Y, 4/3), water saturated, no odor					
							136 - 138 Feet: Silt, some fine sand (ML), dark olive-brown (2.5Y, 3/3), very moist to wet, no odor					

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\\Estserver\projects\EST12700 To EST12799\EST12736\FIGURES\Groundwater Investigation\Boring Log FAE-GW4A 2009-05-20 - 06/02/2009

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION LOG										Boring No. FAE-GW4A		
Project Name: MAS/OCWD					Project Location: 1501-1521 East Orangethorpe Avenue, Fullerton, California					Project No. 2736		
Driller: Cascade					Type of Rig: Sonic Drill			Type/Size of Auger: 8-Inch, 6-Inch, 4-Inch Sonic Pipe				
Logged By: M. Marelo, PG, 5339					Date Drilled: 05/20/2009 - 05/21/2009			Checked By: 4 of 4				
SOIL/ROCK SAMPLE DATA						DESCRIPTION OF LITHOLOGY				WELL/BORING GRAPHIC	Description	
Depth in Feet	Interval	Blow Ct.	Time	Field PID (ppm)	Graphic Log	Depth in Feet	Standard classification, texture, relative moisture, density, stiffness, odor-staining, USCG designation					
							And (40-50%)	With (25-40%)	Some (10-25%)			Trace (0-10%)
140			11:30	NA		140	136 - 138 Feet: Silt, some fine sand (ML), dark olive-brown (2.5Y, 3/3), very moist to wet, no odor					Boring Backfilled with Bentonite Grout
							138 - 142 Feet: Fine sand, some silt (SP-SM), olive-brown (2.5Y, 4/3), water saturated, no odor					
							142 - 145 Feet: Well graded sand, trace silt (SW), olive-brown (2.5Y, 4/3), water saturated, no odor					
145						145	E.O.H 145 Feet					
							Water sample collected by Hydropunch 140 - 145 Feet					

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